Tankmate 2 & Tankmate 160
Tank Contents Gauge
User Guide

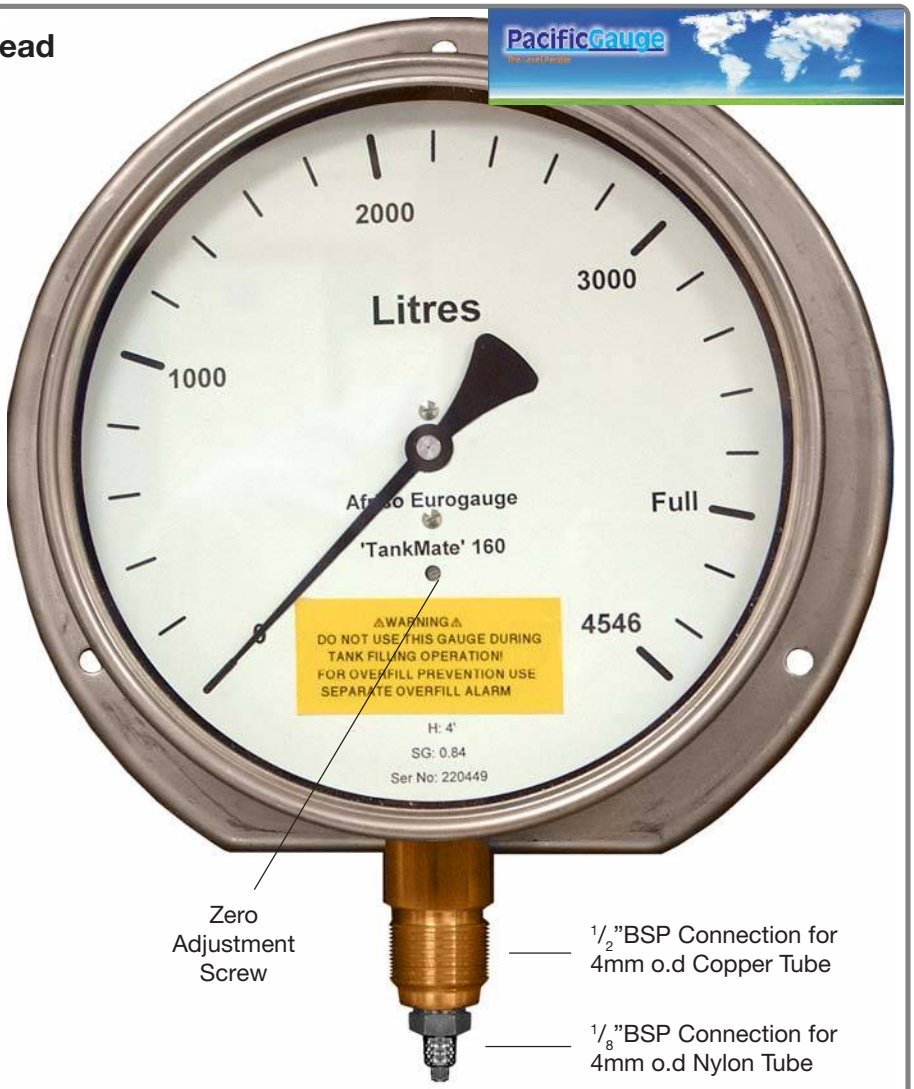
CE

Tankmate Contents Gauge Head

Specification

Gauge Head:-	
Flange	196mm dia.
Bezel	160mm dia
Depth	59mm
Range	0.6 - 10m W.G. at S.G 1.00
Materials	Case, Bezel & Back Plate: Type 304 Stainless Steel (Bezel Polished).
Accuracy	Gauge ± 2% of full scale.
Zero Adjust	Approximately 10% of F.S.D.
Calibration	
Marks	Major max.10 , Minor max.30.
Protection	IP65 (BS5490/IEC529).
Position	Vertical Mounting.
Fixing:	3 holes 5.8mm dia. equispaced on 178mm pcd.
TG Internal Transmitter:-	
Diameter	178mm
Height	140mm
Housing	Mild or Stainless Steel
AG External Transmitter:-	
Diameter	178mm
Height	100mm
Housing	Mild or Stainless Steel

Maximum Distance from Transmitter to Gauge Head: **100 metres**



Zero Adjustment Screw

$^{1}/_{2}$"BSP Connection for 4mm o.d Copper Tube

$^{1}/_{8}$"BSP Connection for 4mm o.d Nylon Tube

$^{3}/_{4}$" or 1" BSP Connection to Tank

$^{1}/_{2}$"BSP Tank Adaptor for use with TG Internal Tank Transmitter

AG External Tank Transmitter

Lifting Cable

Air Bag

TG Internal Tank Transmitter

Questionaire for Tankmate Gauges

Name: Contact: ☎

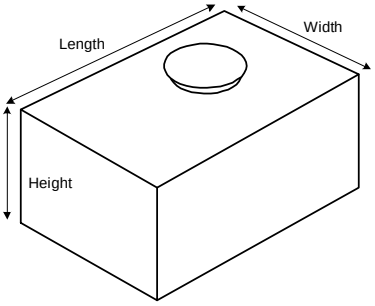
Addr:

Date: Ref:

Tank Dimensions

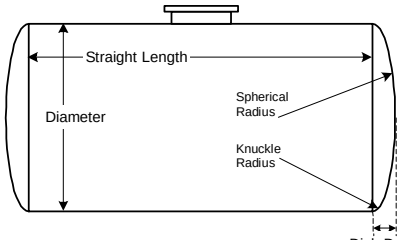
Rectangular Tank

Length: m
Width: m
Height: m



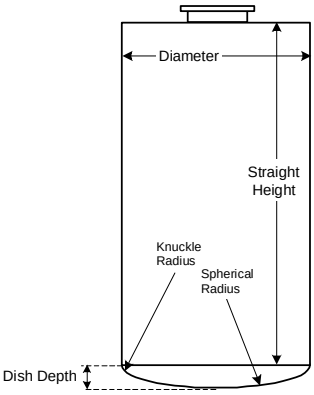
Horizontal Cylindrical Tank

Diameter: m
Straight Length: m
Dished End Depth: m
or
Spherical Radius: m
Knuckle Radius: mm



Vertical Cylindrical Tank

Diameter: m
Straight Height: m
Dish Depth: m
or
Spherical Radius: m
Knuckle Radius: mm



'An accurate gauge depends on accurate information'

Tank Slope: mm or degrees

Position of Tank Gauge Connection from Low End of Tank: m

Contents: Specific Gravity: kg/l

Gauge Scale

Gauge Scale in:

☐ litres ☐ percent ☐ tonnes ☐ metres ☐ m^3

☐ gallons ☐ fractions other (may incur extra charge)

Dial Marking:

Full Mark @ 90% ☐ or %

Refill Mark @ 30% ☐ or %

Empty Mark @ 10% ☐ or %

Gauge Selection

TankMate 2 (Nylon Tube) ☐

Tube Length: m

TankMate 160 (Copper or Stainless Tube) ☐

Copper Tube Length:

10m ☐ 15m ☐ 20m ☐

30m ☐ 50m ☐ 100m ☐

Stainless Tube ☐
(6m minimum length - then in 6m increments)

Dial Diameter

100mm ☐

160mm ☐

TG Internal Transmitter
(requires min. 200mm dia access into tank)

Mild Steel: ☐

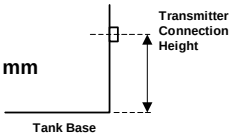
Stainless Steel: ☐

AG External Transmitter

Connection Size

$^3/_4$" BSP ☐ 1" BSP ☐

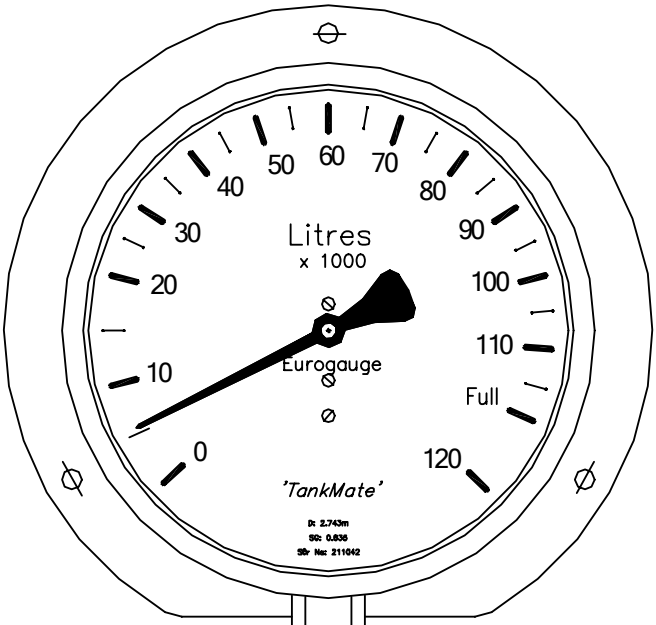
Transmitter Connection Height: mm



Additional Information

Installation Schematic

Tankmate Gauge with TG Internal Transmitter



Push-on fitting
1/8" BSP Taper
Part No. 963709

1/2" BSP Tank Adaptor
Part No. 000160001

Hook for Lifting Cable

Tank Top or Manhole Cover

Lifting Cable (St/Steel)
Part No. 952513

Length according to tank height/ diameter (Fix to tank top or manhole cover)

Nylon tube. 4mm o.d.
Part No. 963708

Push-on fitting
1/8" BSP Taper
Part No. 963709

Flange: 178mm dia. x 20mm
Mild Steel Part No.15013401
Stainless Steel Part No.15013402

Nitrile Airbag
Part No. 15163001

Spigot Assy.
Part no. 152100102

Mounting Pillar
15mm dia x 50mm
Mild Steel Part No. 15014401
Stainless Steel Part No. 15014402

Alternative
Solder Joint Connection

4mm o.d Copper Tube
Part No.
10m 9542 03
15m 9542 04
20m 9542 05
30m 9542 06
50m 9542 07
100m 9542 08

Brass Cap Nut
Part No. 1542 4501

Brass Solder Nipple
Part No. 1541 4501
Soft solder to tube

10mm

Rubber Compression Washer
Part No. 9231 4001

Installation - Tankmate Gauge with TG Internal Transmitter

1. Check the gauge dial for correct calibration, depth and specific gravity and check whether pointer is on zero.

   If pointer is not on zero, carefully remove the front bezel from the gauge and re-set the pointer to zero via the adjustment screw on the gauge dial.

2. Mount the gauge in the required position. If mounting outdoors, the gauge should be protected from direct sunlight.

3. Remove the manhole cover from the tank and mount the tank adaptor close to the manhole or in the cover itself. Attach the lifting cable to a suitable fixing point at the top of the tank.

4. Pass the nylon tube through the tank adaptor and connect it to the TG external transmitter (if using copper tube then make connection in accordance with diagram on page 4).
   Important: This must be a 100% airtight connection.

5. Run the tube to the gauge ensuring that there are no sharp bends or kinks

6. Connect the tube to the gauge (if using copper tube then make connection in accordance with diagram on page 4).
   Important : This must be a 100% airtight connection.

7. Lower the TG transmitter using the lifting cable (DO NOT USE THE TUBE) to the bottom of the tank. Provided that airtight connections have been made at both the transmitter and gauge ends, a correct indication will be obtained and the gauge will maintain a constant reading of the liquid level.

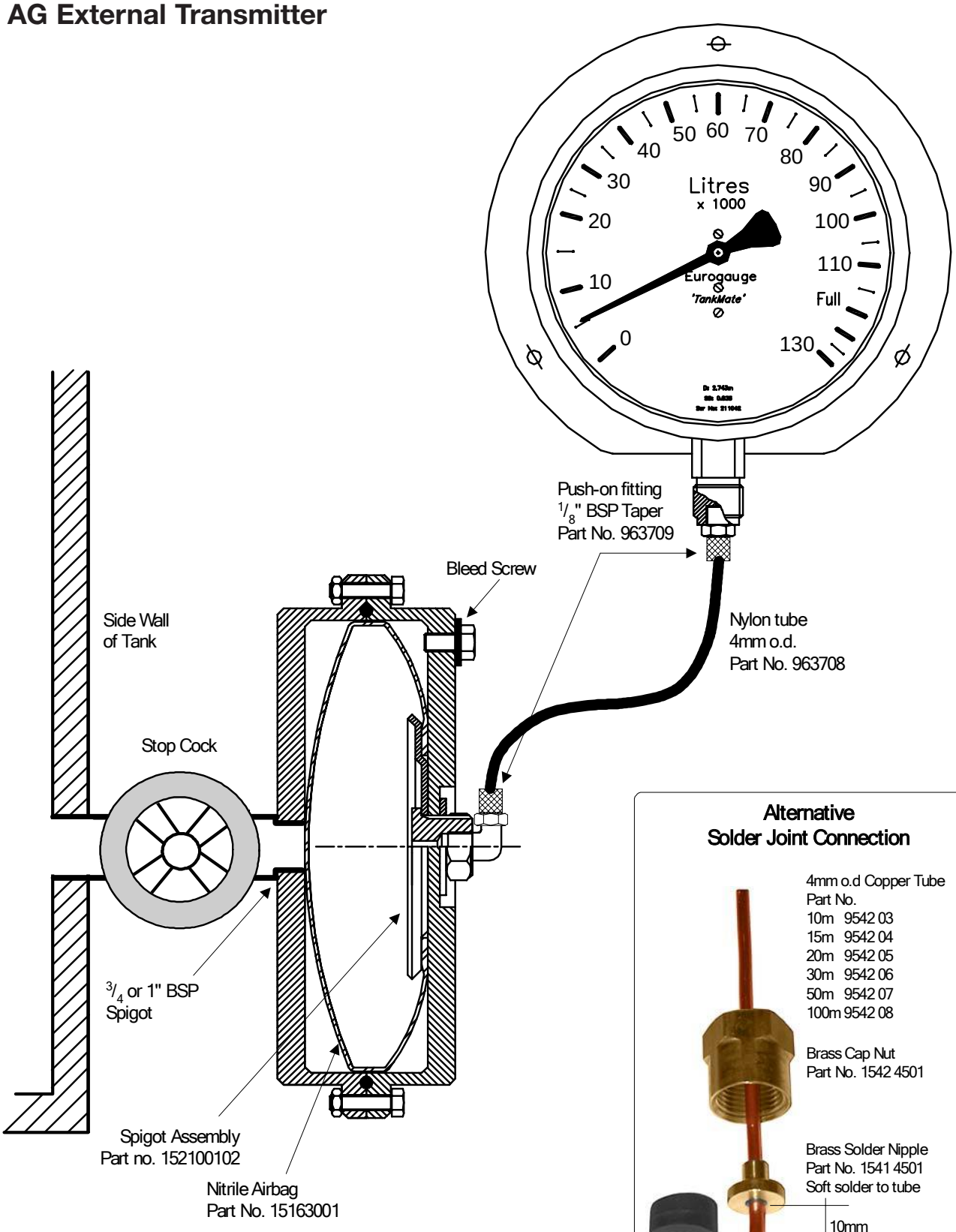
8. Attention: If for any reason the tube has to be disconnected, the transmitter must be first removed from the tank to prevent the airbag in the transmitter from collapsing.

   If the airbag of the transmitter collapses due to an air leak in the system, ensure that the airbag is re-inflated and assumes its normal rounded shape with the tube disconnected. (Blow down the inlet on top of the transmitter until resistance is felt).

   Reconnect the tube to both transmitter and the gauge **before** the transmitter is lowered back to the tank bottom.

Installation Schematic

Tankmate Gauge with AG External Transmitter



Alternative Solder Joint Connection

4mm o.d Copper Tube
Part No.
10m 9542 03
15m 9542 04
20m 9542 05
30m 9542 06
50m 9542 07
100m 9542 08

Brass Cap Nut
Part No. 1542 4501

Brass Solder Nipple
Part No. 1541 4501
Soft solder to tube

10mm

Rubber Compression Washer
Part No. 92314001

Installation - Tankmate Gauge with AG External Transmitter

1. Check the gauge dial for correct calibration, depth and specific gravity and check whether pointer is on zero.
   If pointer is not on zero, carefully remove the front bezel from the gauge and re-set the pointer to zero via the adjustment screw on the gauge dial.

2. Mount the gauge in the required position. If mounting outdoors, the gauge should be protected from direct sunlight.

3. Ensure that the stopcock on the tank is fully closed. Connect the AG transmitter to the stopcock. Ensure that the transmitter bleed screw is positioned vertically at the top of the transmitter.

4. Connect the nylon tube to the AG Transmitter (if using copper tube then make connection in accordance with diagram on page 4).
   Important : This must be a 100% airtight connection.

5. Run the tube to the gauge ensuring that there are no sharp bends or kinks.

6. Connect the tube to the gauge (if using copper tube then make connection in accordance with diagram on page 6).
   Important : This must be a 100% airtight connection.
7. Loosen bleed screw located in the top of the AG Transmitter.

8. Open stopcock **slowly** until liquid begins to run out of the bleed hole.

9. Retighten the bleed screw.

10. Turn the stop-cock fully on.
    Provided that 100% airtight connections have been made at both the transmitter and gauge ends, a correct indication will be obtained, and the gauge will maintain a constant reading of the liquid level.

11. **Attention:**
    If the airbag of the transmitter collapses due to an air leak in the system, ensure that the airbag is re-inflated and assumes its normal rounded shape with the tube disconnected. (Turn off the stopcock, disconnect the transmitter, drain out the liquid, blow down the inlet on top of the transmitter until resistance is felt).
    Reconnect the tube to both transmitter and the gauge **before** the transmitter is lowered back to the tank bottom.

Troubleshooting

Problem	Cause	Action
No reading	Air Leak	Check that capillary tubing has been correctly fitted.
Constant reading regardless of tank contents	Diaphragm in transmitter has collapsed.	Make sure that the transmitter diaphragm has been correctly inflated (blow down inlet on top of transmitter until resistance is felt). Then release pressure and the diaphragm will assume its correct shape.
Slowly decreasing gauge reading	Minute air leaks.	Check for splits or twists in the capillary tube. Remake the capillary tube connections to the gauge and to the transmitter.
Gauge reading too low	Incorrect tank calibration. Diaphragm in transmitter partially deflated.	Check calibration details against: 1. Gauge dial. 2. Original order. 3. Eurogauge advice note. Check diaphragm inflation (see above).
Gauge reading too high	Incorrect tank calibration. Gauge in direct sunlight.	Check the tank calibration as above. Re-mount gauge in a position where it is not exposed to direct sunlight.

If in any doubt about any of the above please contact us on 01293 658360.
Do not attempt to dismantle gauge head as this is a factory adjustment only.

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- **Rotary Paddle**
- **Magnetostrictive**
- **Self-powered gauges**
- **Oil/water Alarms**
- **Leak Detectors**
- **Pressure and Temperature**

Part Numbers

TM160

Capsule Range
A=100mbar (1m) D=400mbar (4m) G=Other
B=160mbar (1.6m) E=600mbar (6m) X=NA
C=250mbar (2.5m) F=1000mbar (10m)

Gauge Head Connector
1=4mm Nylon 2=4mm Brass 3=4mm St/Steel

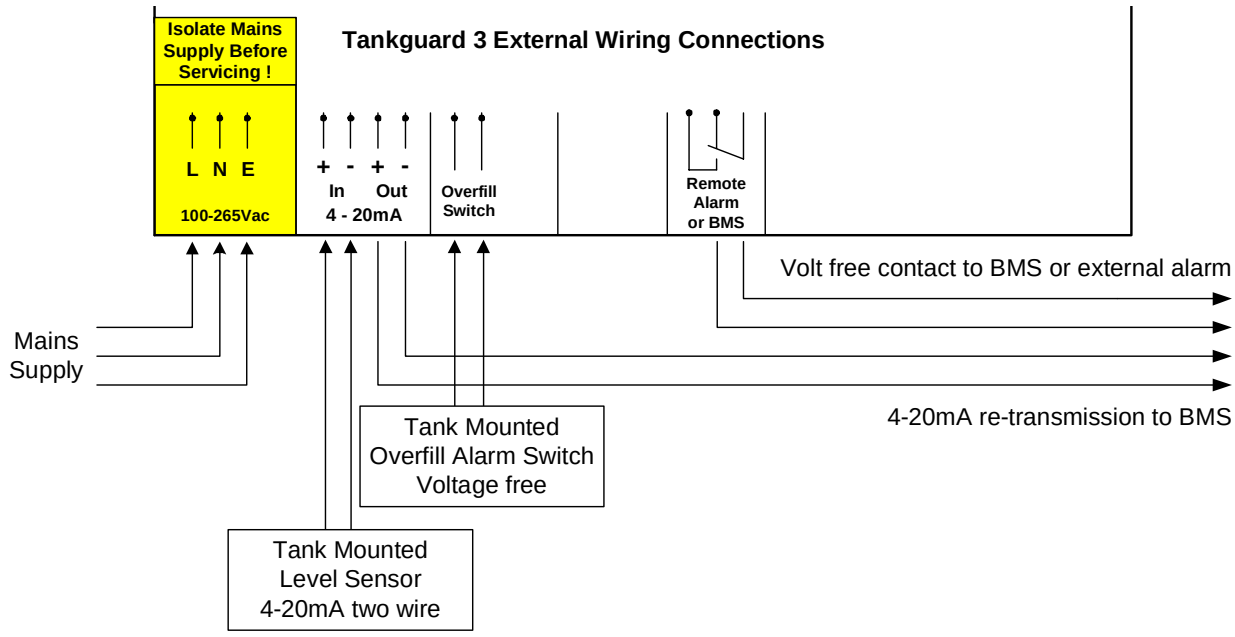
Transmitter Type
A=M/Steel Internal 4mm Nylon Connection
B=St/Steel Internal 4mm Nylon Connection
C=M/Steel Internal 4mm Brass Connection
D=St/Steel Internal 4mm St/Steel Connection
E=St/Steel External 1" BSP 4mm Nylon Connection
F=St/Steel External ¾" BSP 4mm Nylon Connection
G=St/Steel External 1" BSP 4mm Brass Connection
H=St/Steel External ¾" BSP 4mm Brass Connection
X=No Transmitter Required

Tank Adaptor
0=No Tank Adaptor
1=½" BSP Brass Tank Adaptor
2=1" BSP St/Steel tank Adaptor

TM160				

Note: We reserve the right to amend specifications without prior notice.

The ***TankGuard 3*** must be mounted on a flat vertical surface.
All wiring must be in suitable cable for the application conditions and must comply with the relevant electrical supply authority regulations, together with any other statutory requirements which may affect the installation.
The 4-20mA signal cables should, if possible, be run separately from any cables carrying mains voltages.
It is recommended that cable with polyethylene or PVC insulation with a conductor size of at least 1.5mm^2 is used.
If the 4-20mA signal cables are to be run through areas of high electrical interference it is recommended that screened cable is used with the screens being terminated to the earth terminal in the ***TankGuard 3*** unit.
Refer to the user guides for the tank level sensor and overfill alarm switch for their individual connection details.


Isolate Mains Supply Before Servicing !
Tankguard 3 External Wiring Connections
L N E
100-265Vac
+ - + -
In Out
4 - 20mA
Overfill Switch
Remote Alarm or BMS
Volt free contact to BMS or external alarm
Mains Supply
4-20mA re-transmission to BMS
Tank Mounted Overfill Alarm Switch Voltage free
Tank Mounted Level Sensor 4-20mA two wire

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sales@eurogauge.co.uk

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CE

Declaration of Conformity

Tankguard 3

This is to certify that the above named product(s) fully complies with the Electromagnetic Compatability Directive 89/336/EEC and the Low Voltage Directive 73/23/EEC of the European Union and with the requirements of the normative sections of the following harmonised European Standards.

EN50081-1:	Electromagnetic Compatibility - Generic Emission Standard. Part 1 : Residential, Commercial and Light Industry.
EN50082-1:	Electromagnetic Compatibility - Generic Immunity Standard. Part 1 : Residential, Commercial and Light Industry.
EN 61010-1:	Safety requirements for electrical equipment for measurement, control and laboratory use.

Signed :

D. C Ward

Position: Technical Services Manager
Date: 01/04/2009

This declaration applies to the following part number(s):
200130000

The TankGuard 3 is a Fillpoint Tank Management System. Originally designed to comply with all Health and Safety Standards relating to Fuel Oil Installations, the system has been extended to incorporate specific requirements of the various Military, Health and Local Authority users as well as Government and modern Industry.

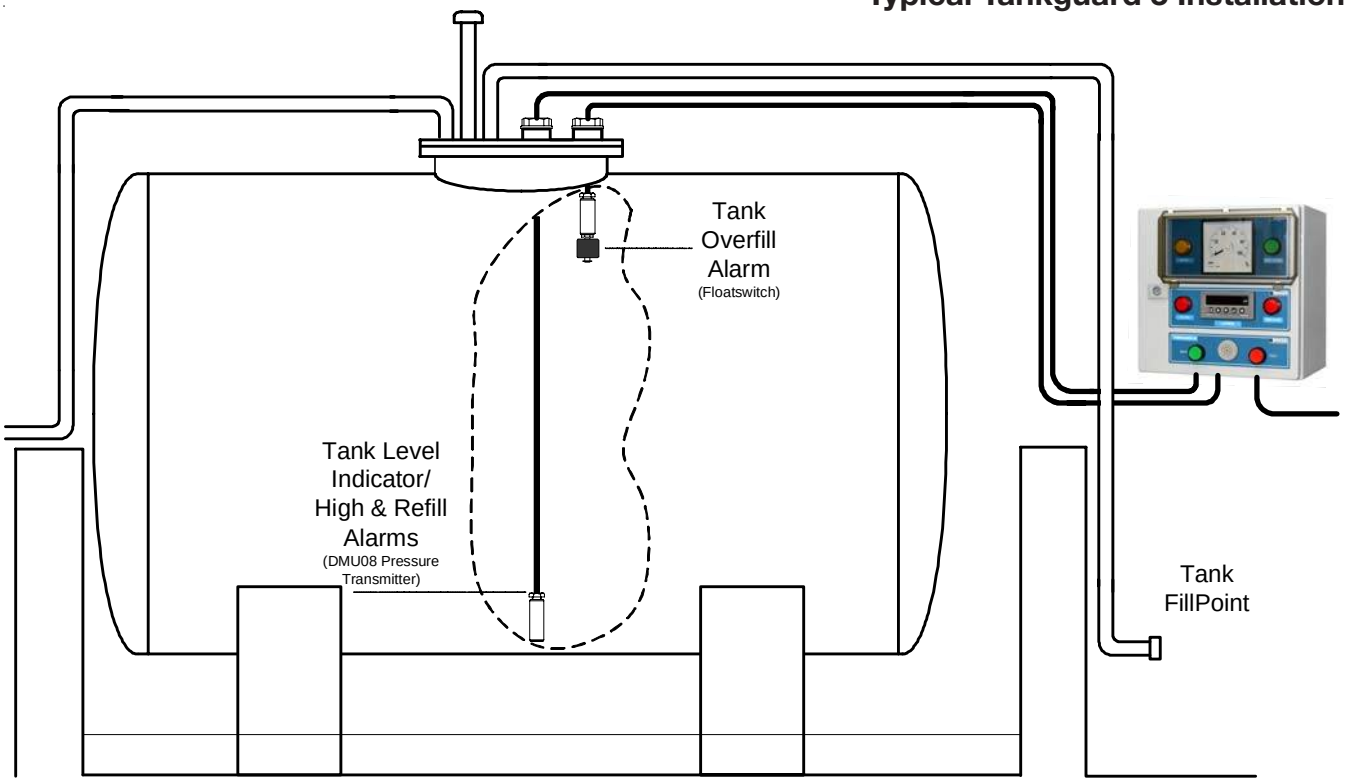
The system complies with M & E III and other related specifications and can be used with any level measuring device powered by a 4-20mA current loop. The unit may also be configured for use with any other non loop-powered level measuring device which provides a 4-20mA output.
This makes TankGuard 3 a universally applicable system providing the user with total flexibility to apply the most reliable type of level sensor element such as capacitance, ultrasonic, pressure, float, intrinsically safe or standard to perform a reliable measuring task.

The TankGuard 3 features an attractive wall-mounting weatherproof housing to IP65 and requires no other cabinet or housing enclosure. It incorporates an easy to read % analogue dial trend indicator to give 'at-a-glance' information of the level in the tank. The red LED digital display provides the user with the current tank volume and an internal sounder and large LED lamps give warnings of re-order, high level and overfill alarm conditions. The overfill alarm input is via a separate level sensor such as a float or capacitance level switch for safety.

System TEST and MUTE buttons are purposely situated for easy operation and the added REFILL VOLUME button is particularly useful for re-ordering purposes and also provides the delivery driver with a check facility to tell him that he can safely discharge the full delivery load into the tank.
The system provides a 4-20mA re-transmission output and also voltage free contacts for connection to a BMS system. A version with GSM monitoring is also available.

The Tankguard 3 is supplied factory calibrated to suit any tank shape.

Typical Tankguard 3 Installation



Digital indication and control instruments VarioFox 12 / 14 in wall mounting enclosures

new

01

- Compact and ready-to-connect
- 5-digit graphic LCD display
- Text-orientated menu user guide
- Freely selectable measurement units
- Integrated transducer supply
- 2 or 4 relay switching outputs
- Data logger function

Description
Compact, ready-to-connect indication and control instrument with digital display, housed in a robust wall mounting enclosure. With integrated transducer supply and 2 relay outputs. VarioFox forms in conjunction with an electronic measurement transducer (e.g. for pressure, temperature, level, etc.) a stand-alone measurement and control system. VarioFox is universally applicable and can be freely configured.

Technical specifications

Display
5-digit graphic LCD display with white background lighting and text-orientated menu guide.
Selectable operating and display languages: German / English / French. Also freely selectable measurement units.

Measuring range
99,999...- 9.999 (start and end of scale values as well as decimal point freely adjustable)

Linearity
±0,1 % of measuring range

Resolution
10 Bit,
decimal point freely adjustable

Response time
< 0,2 secs, filter facility

Operating temperature range
Ambient: -10 °C/+55 °C

Supply voltage
AC 50–253 V
DC 20–253 V

Sensor supply
Integrated, galvanically isolated power supply for transducer:
DC 20 V/20 mA

Sensor inputs
All standard analogue signals, e.g. 4–20 mA, 0–20 mA, 0–10 V.
Transistor (PNP, e.G. for VibraFox GVG)

Visual alarm
1 red LED

Audible alarm
Integrated piezo buzzer, can be muted

Analogue output 1
0/4–20 mA, galvanically isolated

Analogue output 2
0–10 V, galvanically isolated

Switching outputs
Relay contacts: 2 voltage-free changeover (adjustable hysterisis)
Contact rating: AC 250 V 2A 100 VA

For the complete range of 'Digital Indication Instruments', see pages 519 to 521.

Housing
Robust wall mounting housing from impact resistant plastic (ABS)
W x H x D: 100 x 188 x 65 mm
Protection: IP 54 (EN 60529)

Linearisation
Customer specific linearisation with maximum 24 points, e.g. for volume display (litres) in non-linear vessels. Dip charts for horizontally installed cylinders as well as for spherical tanks are pre-programmed.

Min./Max. value memory
The highest and lowest values reached during operation can be called up.

Data storage and clock
Data memory for long-term monitoring on memory card (SD/MMC). Memory card is not part of scope of supply.

Optional

- *4 relay output contacts*

DG: H	Part no.	Price €
VarioFox 12 *(2 relay contacts)*	***31235***	
VarioFox 14 *(4 relay contacts)*	***31236***	
SD memory card	***31237***	***on request***